55-83

Atty. Dkt. No. 016782-0310

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Lieven ANAF et al.

Title: POROUS METAL STACK FOR FUEL CELLS OR ELECTROLYSERS

Appl. No.: 10/501,145

International Filing Date: 12/19/2002

371(c) Date: 7/13/2004

Examiner: Steven M. Scully

Art Unit: 1795

Confirmation Number: 5358

DECLARATION UNDER 37 C.F.R. § 1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Ronny Losfeld, declare as follows:

1. I was employed by N.V. Bekaert S.A., the assignee of this application, during the time that the invention of this application was made.

2. The invention of independent claims 1 and 3 of the above-identified application was conceived at least as early as June 12, 2001 and diligence was exercised until an embodiment of the invention was actually reduced to practice at least by September 24, 2001 and that diligence was exercised at least until the European priority application was filed on January 15, 2002.

3. To demonstrate this earlier date of conception and diligence until the European priority application was filed, the following documents are attached: a notary public registration of an email, a notary public registration of a facsimile transmission, drafts of the European priority application, and handwritten notes on a draft European application.

4. As shown in the attached notary public registration, Exhibit A, the invention for the above-identified application was conceived at least as early as June 12, 2001. Although the first page of the notary public registration is in English, the second and third pages are in Dutch. The following is an English language translation of the second and third pages, with the second page being a title

page and the third page being an email by co-inventor Lieven Anaf to Wim Van Steenlandt on June 11, 2001 relating to fuel cell developments with Nuvera:

Second page:

Document number 2261
Bearing as feature Fuel Cell - Development
Comprising two pages
Belonging to N.V. Bekaert S.A. at Zwevegem
Signed as "ne varietur" on the first page or envelope and further signed on the other pages by notary public Fr. Opsomer in Kortrijk in the presence of two witnesses on the 12th of June 2001 in order to confirm the existence thereof at that date.
(signatures)

Third page:

Dear Wim,

Last week Nuvera Italy paid a visit. In the discussions it became apparent (our proposal by the way) that we could make for them a fuel cell stack out of a combination of a bipolar plate of stainless steel (316 or 310) sintered to a gas diffuser (e.g. a layer of 30 micron fibers of 316L with 85% porosity) and there above a layer of 8 micron fiber of 316L 70% porosity as electrode layer, sintered to the rough fiber layer. This "fine" layer makes contact with the PEM membrane. One may even conceive the combination fine electrode, rough gas diffuser, bipolar plate, rough gas diffuser, electrode, everything sintered together, which may be mounted between various PEM-membranes during construction of the fuel cell stack. Typical thicknesses are: gas diffuser 1.5 à 2 mm, electrode 0.1 à 0.2 mm, bipolar plate 0.2 mm.

The purpose of the combination is to solve the electrical contact problems (since everything is sintered together): all separate parts are now coated with an electroconductive coating (preferably a noble metal) to minimize the contact resistance. The use of 316L also reduces that material costs and provides corrosion resistance in the given circumstances of 70°C and pH 5, as claimed by Nuvera.

The question is to make at least a registration with a notary public and possibly even a patent, also in the framework of possible questioning to other potential players in the market.

In your search to patents relating to electrodes, I have found one patent which describes about the same (namely layers sintered together), however for batteries, patent from Westinghouse.

What is your opinion, can we sit together?

Brgds,

Lieven

5. The notary public registration demonstrates that the invention of claims 1 and 3 was conceived of at least by the date of June 12, 2001.

6. Diligent efforts were undertaken until an embodiment of the invention of claims 1 and 3 was reduced to practice and at least until the European patent application was filed on January 15, 2002. For instance, on June 22, 2001, Nuvera sent specifications for a fiber stack to Bekaert and additional details for the fiber stack were developed, including tests of samples. On July 20, 2001, a sample was tested and it was determined that the porosity of the electrode layer and the gas diffusion layer should be as different as possible and that four samples should be made.

7. As shown by Exhibit B, which is another notary public registration of a facsimile transmission, four Bekaert fibers stacks were sent to Nuvera. The fiber stacks having different layers with different porosities demonstrate that an embodiment of the invention of claims 1 and 3 was reduced to practice by at least September 24, 2001, the date of the notary public registration.

8. Furthermore, diligent efforts were continued until at least the European priority application was filed. On October 19, 2001, a first draft of the European patent application was drafted, a copy of which is attached as Exhibit C. On November 8, 2001 a second draft of the European application was drafted, a copy of which is attached as Exhibit D. On November 21, 2001, hand written additions were made to the draft application, a copy of which is attached as Exhibit E. On November 22, 2001, a further draft of the European application was made, a copy of which is attached as Exhibit F. The further draft was mailed to the inventors on December 19, 2001, a copy of which is attached as Exhibit G, and the further draft was edited on January 9, 2002 and January 11, 2002 before it was filed January 15, 2002.

9. These statements and the attached exhibits demonstrate diligence in the actual reduction to practice of an embodiment of the inventions of claims 1 and 3, and diligence in the preparation of a draft patent application after conception of the invention.

10. All of the work discussed above and reflected in the content of the attached documents was performed in Belgium.

11. Thus, the inventions of independent claims 1 and 3 was conceived as early as June 12, 2001 and diligence was exercised until an embodiment of the invention of claims 1 and 3 was actually reduced to practice and until the European priority application was filed.

12. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful

false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: 2/04/09

Ronny Losfeld